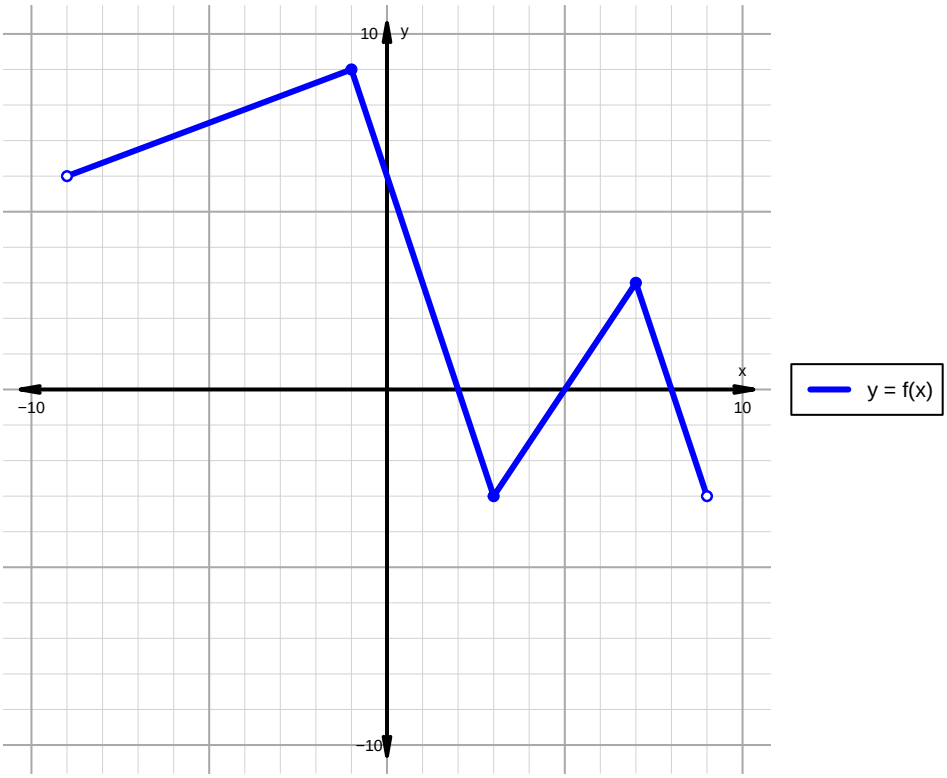
Name: Date:

Intervals, Transformations, and Slope Solution (version 109)

1. The function f is graphed below.



Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate x values; this is standard.

Feature	Where
Positive	$(-9, 2) \cup (5, 8)$
Negative	$(2, 5) \cup (8, 9)$
Increasing	$(-9, -1) \cup (3, 7)$
Decreasing	$(-1, 3) \cup (7, 9)$
Domain	$(-9, 9)$
Range	$(-3, 9)$

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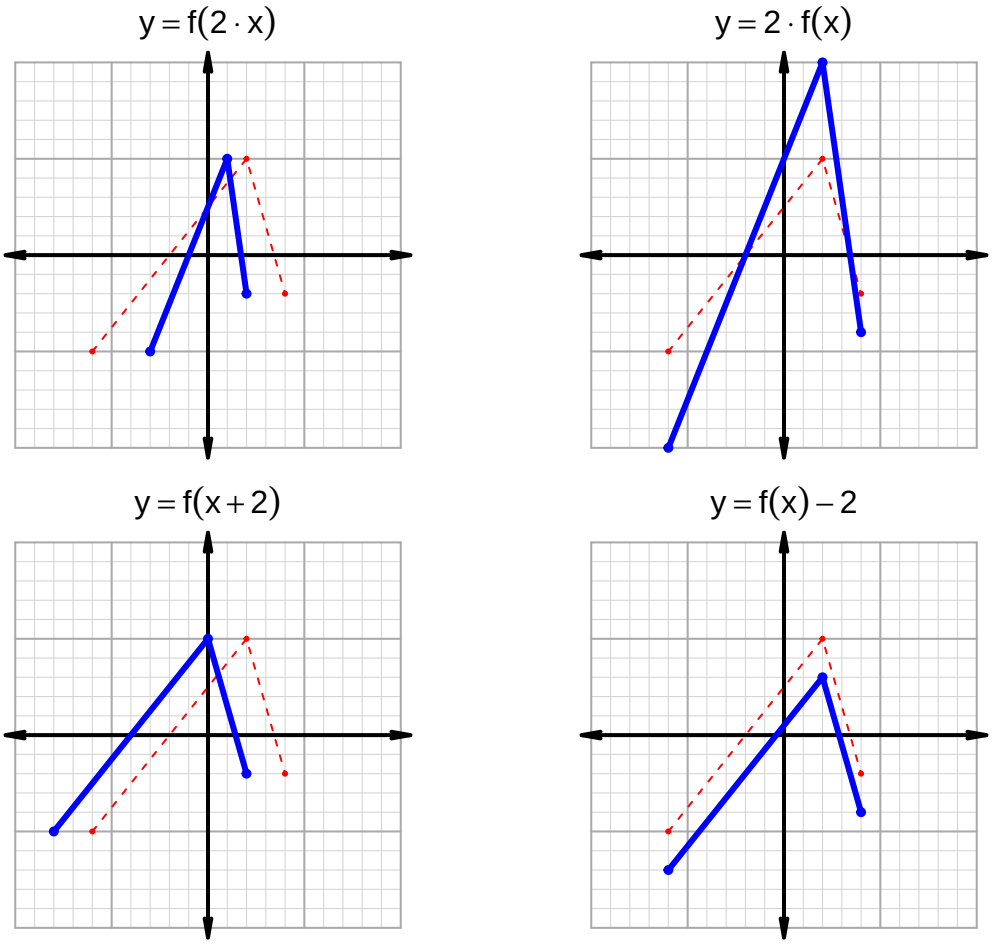
2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.



3. Let function g be defined by the table below. Use the formula $\frac{g(x_2)-g(x_1)}{x_2-x_1}$ to find the average rate of change between $x_1 = 13$ and $x_2 = 21$. Express your answer as a reduced fraction.

x	$g(x)$
13	38
21	48
38	21
48	13

$\frac{f(21)-f(13)}{21-13} = \frac{48-38}{21-13} = \frac{10}{8}$

The greatest common factor of 10 and 8 is 2. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{5}{4}$$